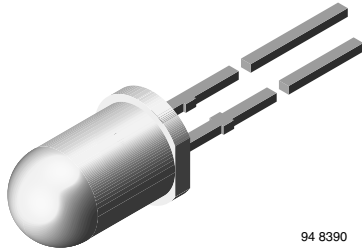


## Silicon PIN Photodiode, RoHS Compliant



94 8390

### DESCRIPTION

BPV10 is a PIN photodiode with high speed and high radiant sensitivity in clear, T-1 $\frac{3}{4}$  plastic package. It is sensitive to visible and near infrared radiation.

### FEATURES

- Package type: leaded
- Package form: T-1 $\frac{3}{4}$
- Dimensions (in mm):  $\varnothing$  5
- Leads with stand-off
- Radiant sensitive area (in mm<sup>2</sup>): 0.78
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- High bandwidth: 250 MHz at  $V_R = 12$  V
- Fast response times
- Angle of half sensitivity:  $\varphi = \pm 20^\circ$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### APPLICATIONS

- High speed photo detector

### PRODUCT SUMMARY

COMPONENT	$I_{ra}$ (mA)	$\varphi$ (deg)	$\lambda_{0.1}$ (nm)
BPV10	70	$\pm 20$	380 to 1100

#### Note

Test condition see table "Basic Characteristics"

### ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
BPV10	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1 $\frac{3}{4}$

#### Note

MOQ: minimum order quantity

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	10	V
Power dissipation	$T_{amb} \leq 25^\circ\text{C}$	$P_V$	215	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 40 to + 100	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5$ s, 2 mm from body	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm <sup>2</sup>	$R_{thJA}$	350	K/W

#### Note

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

<b>BASIC CHARACTERISTICS</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 50 \text{ mA}$	$V_F$		1.0	1.3	V
Breakdown voltage	$I_R = 100 \text{ }\mu\text{A}, E = 0$	$V_{(BR)}$	60			V
Reverse dark current	$V_R = 20 \text{ V}, E = 0$	$I_{ro}$		1	5	nA
Diode capacitance	$V_R = 0 \text{ V}, f = 1 \text{ MHz}, E = 0$	$C_D$		11		pF
	$V_R = 5 \text{ V}, f = 1 \text{ MHz}, E = 0$	$C_D$		3.8		pF
Open circuit voltage	$E_A = 1 \text{ klx}$	$V_O$		480		mV
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	$V_O$		450		mV
Short circuit current	$E_A = 1 \text{ klx}$	$I_K$		80		$\mu\text{A}$
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	$I_K$		65		$\mu\text{A}$
Reverse light current	$E_A = 1 \text{ klx}, V_R = 5 \text{ V}$	$I_{ra}$		85		$\mu\text{A}$
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_R = 5 \text{ V}$	$I_{ra}$	38	70		$\mu\text{A}$
Absolute spectral sensitivity	$V_R = 5 \text{ V}, \lambda = 950 \text{ nm}$	$s(\lambda)$		0.55		A/W
Angle of half sensitivity		$\phi$		$\pm 20$		deg
Wavelength of peak sensitivity		$\lambda_p$		920		nm
Range of spectral bandwidth		$\lambda_{0.1}$		380 to 1100		nm
Quantum efficiency	$\lambda = 950 \text{ nm}$	$\eta$		72		%
Noise equivalent power	$V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$	NEP		$3 \times 10^{-14}$		W/ $\sqrt{\text{Hz}}$
Detectivity	$V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$	D		$3 \times 10^{12}$		$\text{cm}^2/\text{Hz/W}$
Rise time	$V_R = 50 \text{ V}, R_L = 50 \text{ }\Omega, \lambda = 820 \text{ nm}$	$t_r$		2.5		ns
Fall time	$V_R = 50 \text{ V}, R_L = 50 \text{ }\Omega, \lambda = 820 \text{ nm}$	$t_f$		2.5		ns

**Note**
 $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

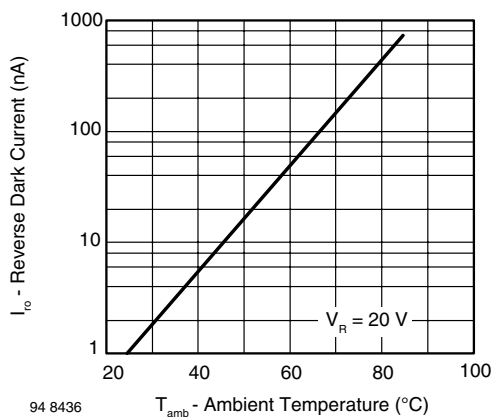
**BASIC CHARACTERISTICS**
 $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

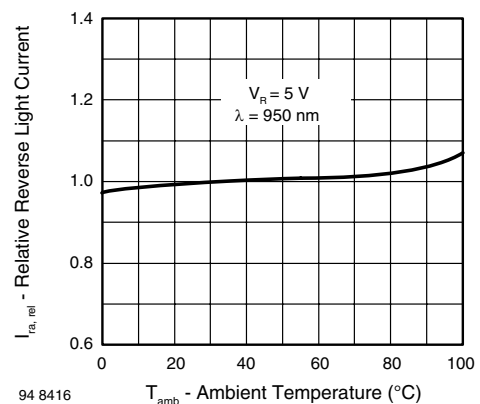
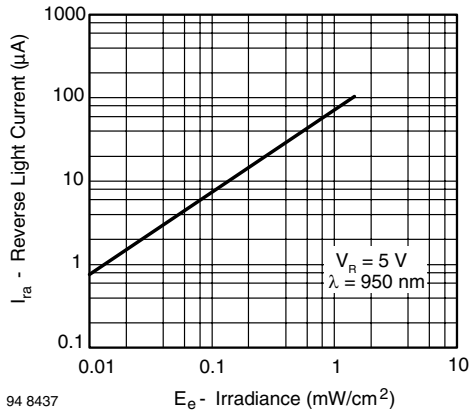
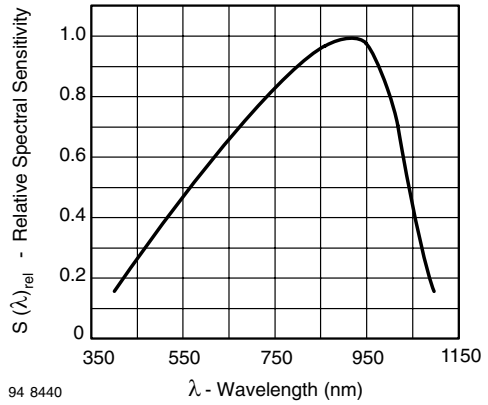


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



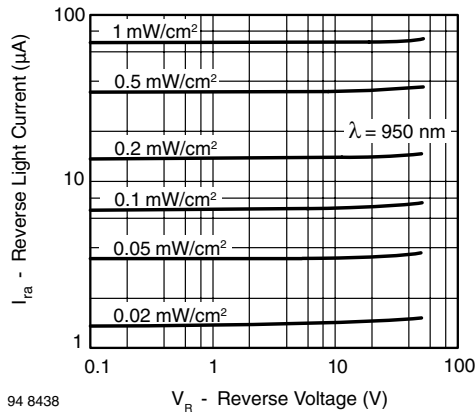
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Fig. 3 - Reverse Light Current vs. Irradiance



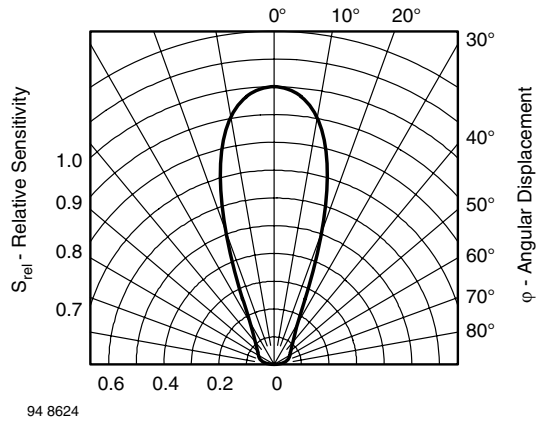
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Fig. 6 - Relative Spectral Sensitivity vs. Wavelength



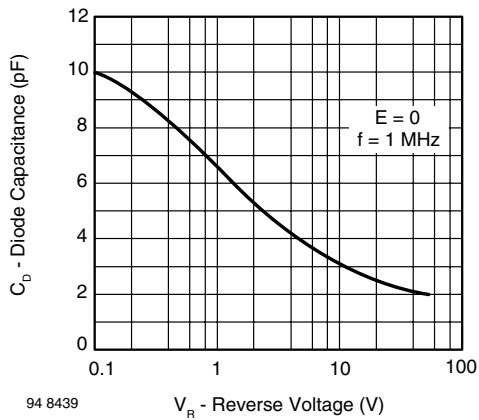
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Fig. 4 - Reverse Light Current vs. Reverse Voltage



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Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

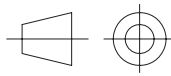
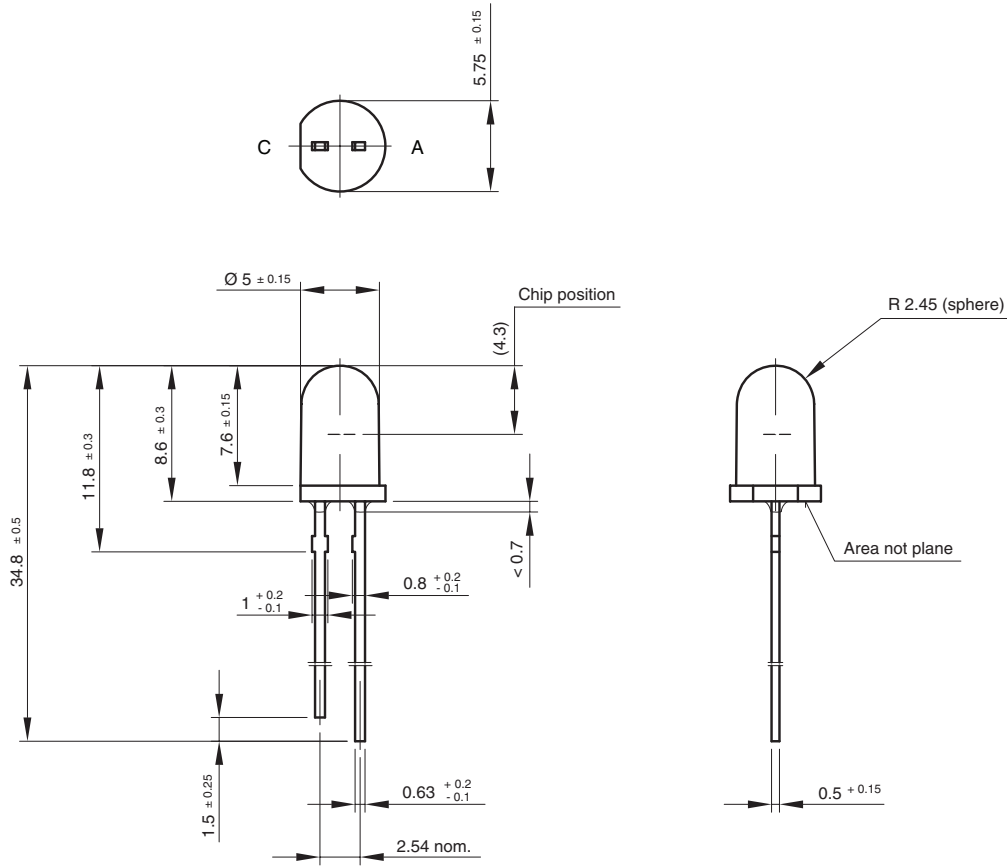


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Fig. 5 - Diode Capacitance vs. Reverse Voltage



PACKAGE DIMENSIONS in millimeters



technical drawings according to DIN specifications

Drawing-No.: 6.544-5185.02-4  
Issue:1; 01.07.96  
96 12199



## Disclaimer

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